

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with applicant's representative, Mr. Eric Hyman, on 7/23/2008. The application has been amended as follows:

In the amendment to specification filed 6/8/2007, delete the two instances of “, etc.” in side the two parentheses.

In claim 8, the word “machine” in line 1 and 2 should read – computer –.

### ***Allowable Subject Matter***

2. Claims 1-8 are allowed over prior art of record. The following is an examiner's statement of reasons for allowance: Ehara (US 6804639) disclose an autocorrelation function calculation unit which calculates a normalized autocorrelation function from a perceptual weighing filtered speech signal (*element 201 in figure 4*); a maximum autocorrelation function and a lag estimation unit which receives the autocorrelation function and estimates a maximum autocorrelation function, a lag having the maximum

autocorrelation function, candidates for the maximum autocorrelation function and lags corresponding to the candidates for the maximum autocorrelation function (*col. 18, lines 22-67*); a pitch candidate decision unit which decides a candidate for a pitch (*col. 18, lines 22-67, maximum auto-correlation candidates are determined. The maximum candidates among these maximum candidates is used in calculating the threshold value*); and a pitch estimation unit for producing a synthesized speech signal, which estimates a pitch between the candidate for a pitch and the lag corresponding to the estimated maximum autocorrelation function by using a pitch of a previous frame of the speech signal (*col. 12, lines 35-48*). Ehara fails to specifically disclose a pitch candidate decision unit which decides a candidate for a pitch by using the ratio of the estimated maximum autocorrelation function to the candidates for the estimated maximum autocorrelation function, and the ratio of the lags having the estimated maximum autocorrelation function to the lags corresponding to the candidates for the estimated maximum autocorrelation function; and autocorrelation function by using a pitch of a previous frame of the speech signal, wherein the pitch estimation unit estimates a lag that is nearest to the pitch of the previous frame between a lag that is smaller than the predetermined threshold and the lag having the maximum autocorrelation function. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Ehara in order to obtain the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huyen X Vo/  
Primary Examiner, Art Unit 2626

7/23/2008

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